



Billing Code 8120-08-P

TENNESSEE VALLEY AUTHORITY

Transmission System Vegetation Management Final Programmatic Environmental Impact Statement

AGENCY: Tennessee Valley Authority.

ACTION: Record of decision.

SUMMARY: This notice is provided in accordance with the Council on Environmental Quality's regulations and Tennessee Valley Authority's (TVA's) procedures for implementing the National Environmental Policy Act (NEPA). TVA has decided to adopt a condition-based control strategy for vegetation management, coupled with an initial clearing off all woody vegetation in the right-of-way (ROW) buffer zones. The full extent of the right-of-way (ROW) would then be maintained to a meadow-like end-state. This alternative is identified as the Preferred Alternative in the Transmission System Vegetation Management Programmatic Environmental Impact Statement (PEIS) and is considered to provide the best balance in enhancing system reliability and safety, minimization of environmental impacts, and striving for cost effectiveness. The notice of availability (NOA) of the Final EIS for the Vegetation Management Environmental Impact Statement was published in the **Federal Register** on August 30, 2019.

FOR FURTHER INFORMATION, CONTACT: Anita E. Masters, Tennessee Valley Authority, 1101 Market Street, BRC 2C, Chattanooga, Tennessee 37402; telephone (423) 751-8697, or by email aemasters@tva.gov. The Final EIS, this Record of Decision (ROD) and other project documents are available on TVA's website <https://www.tva.gov/nepa>.

SUPPLEMENTARY INFORMATION:

TVA is an executive branch federal agency and instrumentality of the United States created by and existing pursuant to the TVA Act of 1933. Its broad mission is to foster the social and economic welfare of the people of the Tennessee Valley region and to promote the proper use and conservation of the region's natural resources. One component of this mission is the generation, transmission, and sale of reliable and affordable electric energy.

TVA's transmission system serves nearly ten million residents in a more than 82,000-square-mile area that spans most of Tennessee and parts of Virginia, North Carolina, Georgia, Alabama, Mississippi, and Kentucky. TVA's transmission system consists of a network of more than 16,000 miles of electric transmission lines and approximately 500 power substations all contained within approximately 238,000 acres of utility ROW. The electricity generated by these resources is transmitted along high-voltage transmission lines typically ranging from 46,000 to 500,000 volts (46 to 500 kilovolts [kV]) to more than 50 directly served, large industrial customers and to 154 local power companies (LPC). These LPCs typically utilize voltages in the range of 4 to 69 kV to connect with end-use customers (e.g., residential homes).

Most of TVA's transmission system is located on private lands. TVA typically acquires perpetual rights through purchased easements which typically provide TVA the legal rights to maintain or repair transmission lines. Many of TVA's purchased transmission ROW easements provide TVA the perpetual right to keep the ROW clear of structures, trees, brush, stored personal property, as well as fire hazards. They also provide TVA the right to clear any trees located beyond the limits of the purchased easement that qualify as danger trees. There are some variations in TVA purchased easements, but in

all cases, TVA's rights are defined by the language of the easement associated with the particular tract and applicable law.

TVA actively maintains approximately 46 percent (110,752 acres) of the transmission ROW. Approximately 51 percent of the ROW is used as cropland, golf courses, orchards or similar uses, which are primarily maintained by the landowner. While the floor of the ROW is often maintained by others in these areas, TVA conducts routine inspections and vegetation management of ditch banks, fence rows, towers, and other features. A relatively small amount of the TVA transmission system ROW (4,720 acres) does not require routine vegetation management by anyone. These areas include ROW that spans open water or deep valleys where vegetation growing at lower elevations does not threaten the transmission line. Trees tall enough to fall within or grow to an unsafe distance of transmission lines under maximum sag and blowout conditions are managed on all lands within and adjacent to the TVA ROW.

Historically, although TVA performed vegetation management consistent with its 1997 and 2008 Line Maintenance Manuals, it did not engage in system-wide maintenance planning. Rather, TVA employees in charge of individual ROW sectors had discretion to determine which vegetation within the ROW in their sector would be cleared. Decisions were based on a variety of factors, including how great a threat the vegetation presented to the transmission lines, budget constraints, and agreements with landowners. The industry-wide North American Electric Reliability Corporation (NERC) reliability standard enacted in 2007 states that transmission systems, like the TVA system, must maintain adequate transmission line clearances as required by the National Electric Safety Code (NESC) in order to be able to survive single-failure events while continuing to serve customer needs with adequate voltage. As such, between 2011 and 2014, the floor work maintenance cycle on transmission ROWs associated with transmission lines carrying

230 kV or higher was shortened from a three-year cycle to a two-year cycle. In addition, floor vegetation maintenance work incorporated a greater percentage of herbicide use to expedite adequate clearance. Although the NERC reliability standards did not require removing trees from the transmission ROW, the penalties assessed by NERC for allowing even one tree to encroach within a specified distance of a conductor can be up to \$1 million for each day that the encroachment is deemed to exist, and NERC can also mandate costly mitigation plans. Therefore, in response to the financial risk of non-compliance, and a desire to maintain system reliability, TVA increased the vegetation management budget to allow for reclaiming non-maintained areas within the width of the transmission ROWs.

Accordingly, traditional methods of vegetation management have had to improve to meet the reliability standards required by NERC via Reliability Standard FAC-003. Recent wildfire events in the Western United States have placed additional scrutiny on ROW vegetation management programs, as these events demonstrate the devastating loss of life and property that can occur if ROW are not properly maintained. TVA, like other energy companies, now develops long-range vegetation management plans for its transmission system, which include considerations for how and when TVA controls the vegetation growing on its transmission line ROWs.

The purpose of TVA's transmission system vegetation management program is to strategically manage TVA's existing transmission line ROW consistent with applicable laws, orders, standards, practices and guidance while providing reliable energy and protecting environmental resources. Vegetation management is needed to enhance public safety, improve the effectiveness of TVA's vegetation management program to eliminate vegetation that interferes with the operation of the existing transmission system so that TVA can continue to provide safe and reliable electric power in a cost-effective

and environmentally sound manner. Sound vegetation management will allow TVA to comply with all current NERC Reliability Standards FAC-003 to maintain transmission lines in a safe and reliable operating condition. In addition, TVA is currently subject to a court injunction issued July 31, 2017 by the U.S. District Court for the Eastern District of Tennessee in the lawsuit, *Sherwood v. TVA*, No. 3-12-cv-156, which requires “TVA [to] maintain buffer zones on the edges of its ROW in a manner as described in its 1997 and 2008 Line Maintenance Manuals” until TVA prepares and publishes a thorough Environmental Impact Statement pursuant to the National Environmental Policy Act analyzing TVA’s ROW vegetation management program. Thus, the completion of this PEIS will enable TVA to fulfill its legal obligations in this court action.

Alternatives Considered

In determining policy and direction for managing vegetation along its transmission line ROW, TVA examined its past and current vegetation management practices and considered standard practices utilized by other entities such as Bonneville Power Administration and the USFS, as well as research conducted by the Electric Power Research Institute (EPRI). TVA’s research revealed that Integrated Vegetation Management (IVM) is the industry standard. The goal of IVM is to provide an integrated and balanced approach of vegetation management that considers the overall long-term effect on public health and safety, reliability, environmental stewardship and cost. Therefore, TVA determined IVM should continue to be a central component of its vegetation management strategy.

Each of the proposed alternatives incorporates an IVM approach based on a carefully planned, multidimensional strategy developed in consultation with forestry and habitat experts. IVM aims to create conditions on the transmission ROW that improve safety

and prevent power outages by creating inherently more compatible and self-sustaining ecosystems while ensuring compliance with regulatory standards. By combining physical vegetation removal with selective use of herbicides, IVM can more thoroughly eradicate incompatible vegetation and allow more “compatible” species to fill in, making it harder for tall-growing vegetation to reestablish.

All of the proposed alternatives would utilize a comprehensive set of methods of general vegetation control (e.g., manual, mechanical, and herbicide/growth regulators) for each component of TVA’s vegetation management program: vegetation control, debris management, and restoration. Floor work under all alternatives (i.e., that which is focused on the maintained herbaceous community) would continue on an established cycle and, in general, would be controlled using a mixture of methods. The proportion of methods to manage floor work has been approximately 90 percent herbicide, six percent mechanical, and four percent manual. Site-specific characteristics and the incorporation of TVA’s office-level sensitive area review (O-SAR) process determine the selection of vegetation management methods employed. The net effect of TVA’s O-SAR process is to consider the site-specific sensitivity at a given location on the transmission ROW in the development of a context sensitive approach to tools for vegetation management that not only have an effect on method selection for floor work but also for tree work. In addition, each of the four alternatives under consideration includes routine assessment methods to establish a basis for vegetation control measures. The alternatives differ in the selected approach to create the desired “end-state” of the vegetative communities along the transmission line ROW.

Alternatives considered in the PEIS are:

Alternative A – No Action – This vegetation management process is prescribed by the court injunction order currently in place in the *Sherwood v. TVA* litigation. Under the Order, TVA must leave existing trees in the maintained area of the ROW so long as they do not pose an immediate hazard to the transmission lines or structures. Additionally, TVA may remove or trim any tree in the previously maintained areas of ROW, or in the non-maintained areas of ROW, or any danger tree outside the transmission ROW that TVA deems to present an immediate hazard to its transmission line or structures in accordance with its contract rights. Vegetated ROW buffer would not be removed under this alternative. Floor work would continue to be managed on a nominal three-year cycle in previously cleared areas. The No Action Alternative does not adequately address the potential for service outages from trees growing into the line, falling into the line, or creating a fire hazard to the transmission lines and structures and as such creates an increasing risk to reliability. The No Action Alternative also does not adequately address the risk to public safety that can stem from wildfires caused by power lines. In addition, this approach would lead to a marked increase in worker safety concerns, due to the increased risk of serious injuries and fatalities associated with the increased need to undertake manual removal of large danger trees. Consequently, this alternative would not satisfy the project purpose and need and, therefore, is not considered a viable or reasonable vegetation management alternative.

Due to the injunction associated with the *Sherwood v. TVA* litigation, TVA has stopped removing woody vegetation except for trees that are an immediate hazard to the reliability of the transmission system and/or safety of the public. As a result, buffer zones within the existing ROW continue to contain vegetation incompatible with TVA's transmission system. The volume of non-compatible woody vegetation is also increasing within the previously-cleared ROWs due to the court injunction order.

To ensure the safe and reliable operation of the transmission facilities and to improve the efficiency and effectiveness of vegetation management, Alternatives B, C and D would include an initial removal of vegetation within the buffer areas (except grasses, forbs, and some small shrubs) within the full extent of the ROW. Initial woody vegetation removal activities would entail the use of both mechanical (about 85 percent) and manual (about 15 percent) methods. Where terrain conditions provide for higher clearances (i.e., ravines, steep slopes etc.), vegetation may not conflict with the safe and reliable operation of the transmission lines, and thus would not need to be removed.

Alternative B – Cyclical-Based Control Strategy – Under Alternative B, after the initial removal of woody vegetation within the buffer areas, the full extent of the transmission ROW subject to TVA vegetation management would be cleared on a recurring cycle (typically every 3 years). All vegetation with the potential to interfere with the safe and reliable operation of the transmission system would be removed using a combination of herbicides and mechanical or manual methods depending on the specific site condition. Incompatible vegetation would be determined by field inspections. TVA previously has, in some instances, allowed property owners to maintain trees on their property within the transmission ROW. However, this practice is unsafe for the landowner as well as for the reliability of the transmission system because implementation, timing and consistency of owner maintenance can be unreliable. Accordingly, this practice would no longer be allowed under this alternative.

Alternative C – Condition-Based Control Strategy – End-State Meadow-like, Except for Areas Actively Maintained by Others (Compatible Trees Allowed) –After the initial removal of woody vegetation within the buffer areas, TVA would use an IVM approach to promote the establishment of a plant community dominated by low-growing herbaceous and shrub-scrub species that do not interfere with the safe and reliable operation of the

transmission system. The goal of this vegetation management alternative would be to allow compatible vegetation to establish and propagate to reduce the presence of woody species. Hazard and danger trees would be removed using a combination of mechanical and manual methods depending on site conditions. Under this alternative, TVA would have the option to allow compatible trees to remain in areas actively maintained by others (such as residential lands, orchards, forest plantations, agricultural lands or other similar areas). The maintenance of trees in these areas would be optimized with the use of various inspection methods. These methods include aerial patrols, ground patrols, photogrammetry, and Light Detection and Ranging (LiDAR) surveys to identify the extent of any tree removal needed. These tools allow TVA to implement a targeted approach through the identification of categories that define the risk and removal of trees in these areas.

Alternative D - Condition-Based Control Strategy – End-State Compatible Vegetation Variable by Zone, Except for Areas Actively Maintained by Others (Compatible Trees Allowed) – As with Alternative C, after the initial removal of woody vegetation within the buffer areas, TVA would implement a process of vegetation community conversion within the transmission ROW wire zone using an IVM approach. However, under Alternative D, the buffer zone would be allowed to redevelop with compatible species of shrubs and trees. The goal of this vegetation management alternative is to promote a soft or "feathered" edge which could be used to provide a transition from forested habitat into the meadow-like habitat of the wire zone. Removal of hazard and danger trees and routine vegetation maintenance and management of compatible trees in areas actively maintained by others would be the same as Alternative C.

Environmentally Preferred Alternative

The scope of the potential alternatives is formed by the purpose and need of the proposed action, namely, the need to improve the effectiveness of TVA's vegetation management program by eliminating vegetation that interferes with the safe and reliable operation of the transmission system. Therefore, under all of the proposed alternatives, some vegetation control would be the same and as such, implementation of any of the alternatives would result in direct impacts to herbaceous plant communities as a result of the recurring impact on plants within the ROW. Because this is part of an existing management program, it would not result in widespread alteration of the overall plant community. While there is a potential for long-term impacts to natural resources, such impacts would be minimized through sound planning and the incorporation of TVA's O-SAR process as a best management practice (BMP) and the incorporation of other established TVA transmission ROW Management BMPs and established transmission-related environmental protection practices.

Impacts to the human environment (land use, socioeconomics, air, noise, cultural resources, solid/hazardous waste, public and worker safety, etc.) and on land management (residential, recreational, agricultural, commercial, industrial, National Park Service [NPS], U.S. Forest Service [USFS], City, County, and State), would occur as a result of the maintenance disturbance on the transmission ROW. These impacts would be localized and short-term disturbances that are not expected to result in notable or destabilizing effects. Additionally, impacts to cultural, historic and traditional cultural properties (TCPs) would be minimized by ensuring compliance with Section 106 of the Natural Historic Preservation Act (NHPA). TVA has prepared a Programmatic Agreement (PA) under NHPA in coordination with the seven State Historic Preservation Officers (SHPOs) within the TVA power service area, the Advisory Council on Historic Preservation (ACHP) and federally recognized Indian tribes within the study area. For

vegetation management activities not covered by the PA or in the event that TVA does not have an executed PA with a particular SHPO, TVA would follow the Section 106 process for specific undertakings. As such, impacts from any of the management alternatives on the elements of the human environment are minor.

Alternative A—No Action would result in the lowest level of environmental impacts as the initial removal of woody vegetation would not be conducted, reducing equipment operations and manpower requirements in comparison to the other alternatives over the first eight years. Additionally, less floor work would be required in the future for approximately 8,094 acres of land that would be maintained under Alternatives B, C and D. However, Alternative A – No Action, does not meet the purpose and need for the project.

Habitat alteration associated with initial woody vegetation removal under Alternatives B,C and D is considered to be notable, but it should not destabilize associated resources. Alternative B entails the cyclical treatment of the entire transmission ROW to maintain the floor and would not be expected to result in a vegetative end condition that is of a higher quality as Alternatives C and D. Under Alternative C, the plant community would develop into a meadow-like end-state that is more compatible with the safe and reliable operation of the transmission system and of higher quality than Alternative B. Management of the transmission ROW under Alternative D is intended to result in a meadow-like condition similar to Alternative C. Notably however, this alternative would allow for the development of a compatible border zone which provides greater benefits for selective wildlife species relative to Alternative C in terms of habitat quality in the end-state. However, accomplishment of this end-state requires additional manpower and the inclusion of trained staff (botanists) with each crew who can direct the application of control methods to achieve the desired end-state.

Public Involvement

On January 23, 2017, a Notice of Intent (NOI) to prepare an EIS to address the management of vegetation on its transmission system was published in the **Federal Register**. The NOI initiated a public scoping period, which concluded on April 1, 2017.

In addition to the NOI in the **Federal Register**, TVA published information about the review and planning effort on TVA's project Web site, notified the media, and sent notices to numerous individuals, organizations, and intergovernmental partners with information about the review.

During scoping, TVA received fifteen comments related to use of herbicides and mechanical controls, and five comments regarding the use of border to border management. The remaining 33 comments identified issues to be addressed in the Programmatic EIS. These comments were considered and as a result, TVA added an additional alternative, Alternative D to be considered in the EIS.

The Draft PEIS was released to the public on August 8, 2018, and a notice of availability (NOA) including a request for comments on the Draft PEIS, was published in the **Federal Register** on August 17, 2018. Publication of the NOA in the **Federal Register** opened the 45-day comment period, which ended on October 1, 2018. To solicit public input, the availability of the Draft PEIS was announced in regional and local newspapers and a news release was issued to the media and posted to TVA's Web site and hard copies were made available by request.

TVA's agency involvement included circulation of the Draft PEIS to local, state, and federal agencies and federally recognized Indian tribes as part of the review. The NPS and the USFS served as cooperating agencies in this review.

During the public comment period on the Draft PEIS, TVA conducted seven public meetings across the Valley. Notification of the public meetings was published in local newspapers and on TVA's project Web site.

TVA received 150 comment submissions from members of the public, organizations and state and federal agencies. Comment submissions were carefully reviewed and compiled into main topics which received general responses. More specific public comments, local group comments, and agency comments received individual responses. The most frequently mentioned topics included comments regarding keeping the "old" vegetation management policy, project purpose and need, private property concerns, project costs and use of herbicides. Additional comments regarding climate change, compatible vegetation, BMPs, and expressing preference for a particular alternative were also received. TVA provided responses to these comments, made appropriate minor revisions to the Draft EIS and issued this Final EIS.

The NOA for the Final EIS was published in the **Federal Register** on August 30, 2019.

Decision

TVA has decided to implement the preferred alternative, Alternative C, which would include implementing a process of vegetation community conversion within the full extent of the actively managed transmission ROW. This alternative is considered to provide the best balance in enhancing system reliability and safety, minimization of environmental impacts, and striving for cost effectiveness.

Mitigation Measures

Mitigation measures to avoid, minimize, or reduce adverse impacts to the environment are summarized below. Any additional project-specific mitigation measures, such as avoiding areas identified from desktop reviews as having a high probability of any sensitive resources, would be identified on a site-specific basis.

TVA has prepared comprehensive standard BMPs that represent mitigation measures that are effective in avoiding, minimizing, rectifying and compensating for effects of vegetation management activities. These BMPs are detailed in TVA's guide for environmental and best management practices. Topics addressed in this manual include the following:

- Best Management Practices for Construction and Maintenance Activities including Vegetation Management.
- Sensitive Resources and Buffer Zones.
- Structural Controls, Standards and Specifications.
- Seeding/Stabilization Techniques.
- Practices and procedures are provided that directly relate to the vegetation management activities including initial woody vegetation removal, good housekeeping, waste disposal, herbicide use, and stormwater discharge management.
- Integration of TVA's O-SAR process.

Any additional project-specific mitigation measures, such as avoiding areas identified from desktop reviews as having a high probability of any sensitive resources, would be identified on a site-specific basis.

Dated: October 3, 2019.

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